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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/829,309

04/20/2004

Chang-Hung Lee

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7590 06/20/2007  
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EXAMINER

CABUCOS, MARIE G

ART UNIT

PAPER NUMBER

2163

MAIL DATE

DELIVERY MODE

06/20/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/829,309

Applicant(s)

LEE, CHANG-HUNG

Examiner

Marie Antoinette Cabucos

Art Unit

2163

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 4/20/2004 and amendment filed 2/12/2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 22-39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 22-39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 April 2004 and 12 February 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 22-39 are rejected under 35 U.S.C. 102(e) as being anticipated by Lee et al (US Publication no. 2003/0217055).

The applied reference has a common inventor with the instant application.

Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

3. Regarding claims 22 and 31, Lee discloses a method and system of mining association itemsets, the method comprising using a computer to perform the steps of: providing a first itemset containing two first items, and having a first weighted frequency (filtering threshold) exceeding or equaling to a first weighted min\_supp value, the first weighted frequency and the first weighted min\_supp value having been calculated for a prior partition comprising a plurality of prior transactions (page 2, paragraph 0020);

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calculating a second weighted frequency of the first itemset for both the prior partition and a current partition by increasing the first weighted frequency, the current partition comprising all of a plurality of current transactions established later than all the prior transactions of the prior partition (page 2, paragraphs 0020); calculating a second weighted min\_supp value for both the prior and current partitions by increasing the first weighted min\_supp value (page 2, paragraphs 0020); and storing the first itemset in a result for a subsequent partition later than the current partition when determining that the second weighted frequency exceeds the second weighted min\_supp value (figure 12b).

4. Regarding claims 23-25 and 32-34, Lee discloses a method and system as claimed in claim 22, wherein the first weighted frequency is calculated by an equation:

$$X2.count(P1) = Np1(X2) * W(P1),$$

where P1 represents the prior partition, Np1(X2) represents a occurrence of the first itemset in the prior partition, and W(P1) is a first weighted value; wherein the second weighted frequency is calculated by an equation,

$$X2. count (P1\&P2) = X2. count (P1) + Np2 (X2) * W (P2),$$

P2 represents the current partition, X2.count(P1) represents the first weighted frequency, Np2(X2) represents a occurrence of the first itemset in the current partition, and W(P2) represents a second weighted value; and wherein the first weighted value is greater than the second weighted value (page 11, paragraphs 0254-0255).

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5. Regarding claims 26-28 and 35-37, Lee discloses a method and system as claimed in claim 22, wherein the first weighted min\_supp value is calculated by an equation:

$$\text{min\_supp}(P1) = \text{min\_supp} * N(P1) * W(P1),$$

P1 represents the prior partition, min\_supp represents a min supp value, N(P1) represents a sum of the prior transactions of the prior partition, and W(P1) represents the first weighted value; wherein the second weighted min\_supp value is calculated by an equation,

$$\text{min\_supp}(P1\&P2) = \text{min\_supp}(P1) + \text{min\_supp} * N(P2) * W(P2),$$

P2 represents the current partition, min\_supp(P1) represents the first weighted min\_supp value, N(P2) represents a sum of the current transactions of the current partition, and W(P2) represents the second weighted value; and wherein the first weighted value is greater than the second weighted value (page 11, paragraphs 00257 and 0259).

6. Regarding claims 29, 30, 38 and 39, Lee discloses a method and system as claimed in claim 22, further comprising: providing a second itemset containing two second items; calculating a third weighted frequency by multiplying a occurrence of the second itemset in the current partition by a weighted value; calculating a third weighted min\_supp value by multiplying a sum of transactions in the current partition by the weighted value; and storing the second itemset in the result for the subsequent partition when determining that the third weighted frequency exceeds the third weighted min\_supp value, wherein the second itemset is not detected in the prior partition, or a

third weighted frequency of the second itemset does not exceed or equal the first weighted min\_supp value (figures 11-13; page 12, paragraphs 0297-0299); and further comprising storing the second weighted value of the first itemset, and the second min\_supp value of the first itemset (paragraph 0298; figure 12a).

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 22-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ma et al (US Publication no. 2003/0097367) in view of Kleinberg et al (US Patent no. 5,884,305).

8. Regarding claims 22 and 31, Ma discloses in figure 4 a method and system of mining association itemsets (pairwise), the method comprising using a computer to perform the steps of: providing a first itemset containing two first items (paragraph 0011), and having a first weighted frequency (paragraph 0070, predefined threshold values) exceeding or equaling to a first weighted min\_supp value (figure 4, paragraph 0070, qualification function) the first weighted frequency and the first weighted min\_supp value having been calculated for a prior partition (time window) comprising a plurality of prior transactions (page 2, paragraphs 0012, 0017 and 0070); calculating a second weighted frequency of the first itemset for both the prior partition and a current

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partition by increasing the first weighted frequency, the current partition comprising all of a plurality of current transactions established later than all the prior transactions of the prior partition (paragraphs 0070-0071); and ; and storing the first itemset in a result for a subsequent partition later than the current partition when determining that the second weighted frequency exceeds the second weighted min\_supp value (figure 4). Ma does not disclose calculating a second weighted min\_supp value for both the prior and current partitions by increasing the first weighted min\_supp value, however, Kleinberg does disclose calculating a second weighted min\_supp value for both the prior and current partitions (col. 7, lines 14-51). It would have been obvious by one having ordinary skill in the art, at the time of the invention, to combine the teaching of Ma and Kleinberg so as to provide a system and method for quickly mining large databases, which is easy to use and is cost-effective.

9. Regarding claims 23-25 and 32-34, the method and system as claimed in claim 22, wherein the first weighted frequency is calculated by an equation:

$$X2.count(P1) = Np1(X2) * W(P1),$$

where P1 represents the prior partition, Np1(X2) represents a occurrence of the first itemset in the prior partition, and W(P1) is a first weighted value; wherein the second weighted frequency is calculated by an equation,

$$X2. count (P1\&P2) = X2. count (P1) +Np2 (X2) *W (P2),$$

P2 represents the current partition, X2.count(P1) represents the first weighted frequency, Np2(X2) represents a occurrence of the first itemset in the current partition,

and  $W(P2)$  represents a second weighted value; and wherein the first weighted value is greater than the second weighted value (Ma paragraph 0070-0071).

10. Regarding claims 26-28 and 35-37, the method and system as claimed in claim 22, wherein the first weighted min\_supp value is calculated by an equation:

$$\text{min\_supp}(P1) = \text{min\_supp} * N(P1) * W(P1),$$

$P1$  represents the prior partition, min\_supp represents a min supp value,  $N(P1)$  represents a sum of the prior transactions of the prior partition, and  $W(P1)$  represents the first weighted value; wherein the second weighted min\_supp value is calculated by an equation,

$$\text{min\_supp}(P1\&P2) = \text{min\_supp}(P1) + \text{min\_supp} * N(P2) * W(P2),$$

$P2$  represents the current partition, min\_supp( $P1$ ) represents the first weighted min\_supp value,  $N(P2)$  represents a sum of the current transactions of the current partition, and  $W(P2)$  represents the second weighted value; and wherein the first weighted value is greater than the second weighted value (Kleinberg col. 7, lines 14-51).

11. Regarding claims 29, 30, 38 and 39, Ma discloses in figures 3 and 4 a method and system as claimed in claim 22, further comprising: providing a second itemset containing two second items; calculating a third weighted frequency by multiplying a occurrence of the second itemset in the current partition by a weighted value; calculating a third weighted min\_supp value by multiplying a sum of transactions in the current partition by the weighted value; and storing the second itemset in the result for the subsequent partition when determining that the third weighted frequency exceeds



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the third weighted min\_supp value, wherein the second itemset is not detected in the prior partition, or a third weighted frequency of the second itemset does not exceed or equal the first weighted min\_supp value (paragraphs 0066-0068); and further comprising storing the second weighted value of the first itemset, and the second min\_supp value of the first itemset (figure 3, reference 316).

### ***Response to Arguments***

Applicant's arguments with respect to claims 22-39 have been considered but are moot in view of the new ground(s) of rejection.

### ***Pertinent Prior Art***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Prior art of Ozden et al (US Patent no. 6,278,998) discloses data mining using cyclic association rules.

Prior art of Mahajan et al (US Patent no. 6,236,982) discloses a system and method for discovering calendric association rules.

Prior art of Dan Holle (US Patent no. 6,836,777) discloses a system and method for constructing generic analytical database applications.

Prior art of Ma et al (US Publication no. 2003/0023591) discloses a system and method for discovering mutual dependence patterns.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

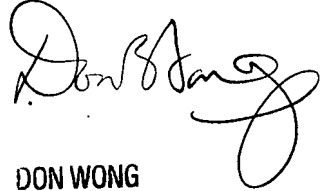
### ***Inquiry***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marie Antoinette Cabucos whose telephone number is 571-272-8582. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don K. Wong can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Marie Antoinette Cabucos  
Examiner  
Art Unit 2163



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